

Please note:

appendices A, C and D. are
missing from Paper #12.

APPENDIX

A, C, D

ARE MISSING

FROM FILE



TRADING TECHNOLOGIES™



TRADING TECHNOLOGIES

TRADING TECHNOLOGIES™



Trading Technologies suite of products gives you and your customers the best technological edge in the business. Combining universal exchange/marketplace access, high performance, and full customization, X_TRADER, with its sophisticated trading tools, enhances your presence in all the world's open-access electronic markets.

X_TRADER® the ultra-fast, flexible trading screen for all stock, bond, futures and options trading

X_QUOTE™ provides advanced quoting with sophisticated order and trade management.

GUARDIAN™ monitors system/exchange performance and administration.

X_WEB™ is an extraordinarily fast, secure, internet-based trading system for the world's electronic markets that is designed specifically for massive scalability.

X_RISK™ is the software tool that enables risk managers, desk managers and any authorized trader to monitor all trading activity.

X_MARKET MAKER™ provides you with a market making screen that allows you to enter two-sided markets with a single send command, as well as other market making features.

TT EXCHANGE™ is a highly flexible, state of the art, exchange-matching system designed to automate any exchange, OTC, multi-dealer or B2B marketplace.



①

Market Depth

The Market Depth Trader window provides a view of the market depth for a selected product and you can open as many MD Trader windows as you have products in the Market Grid. From this window you can perform one-click trading for any single product that populates the MD Trader window. This trading method is used as an alternative to the click trading technique that is also available in X_TRADER.

| Eurex: FDAX 1 | | | | | | | | | | | | | |
|---------------|------|-----|------|--------|--------|------|-----|---------|-------|-------|--------|--------|--|
| Month | Dept | Bid | BidQ | BidPrc | AskPrc | AskQ | Ask | LastPrc | LossQ | Total | High | Low | |
| JUN99 | | | 2 | 4853.5 | 4855.0 | 14 | | 4854.0 | 1 | 23456 | 4882.0 | 4814.0 | |
| | | 3 | 2 | 4853.5 | 4855.0 | 14 | 15 | | | | | | |
| | | 8 | 5 | 4853.0 | 4856.0 | 2 | 17 | | | | | | |
| | | 9 | 1 | 4852.5 | 4856.5 | 7 | 24 | | | | | | |
| | | 11 | 2 | 4852.0 | 4857.0 | 60 | 84 | | | | | | |
| | | 18 | 7 | 4851.5 | 4858.0 | 25 | 109 | | | | | | |
| | | 31 | 13 | 4851.0 | 4858.5 | 20 | 129 | | | | | | |
| | | 37 | 6 | 4850.5 | 4859.0 | 4 | 133 | | | | | | |
| | | 79 | 42 | 4850.0 | 4860.0 | 48 | 181 | | | | | | |
| | | 104 | 25 | 4849.0 | 4862.5 | 2 | 183 | | | | | | |
| | | | | | | | | | | | | | |
| SEP99 | | | 2 | 4887.5 | 4890.0 | 14 | | 4898.0 | 1 | 60 | 4898.0 | 4865.5 | |

| Audit Trail | | | | | | | | | | | | | |
|--------------|-------|--------|----|-----|---|-------|--------|--------|---------|-------|----------|------|--|
| Time | Exch | Status | CP | Qty | Product | MMYY | Strike | Limit | StopPrc | Type | TIF | Rest | |
| 12:30:06.15 | Eurex | OK | | 289 | FGEL | SEP00 | | 101.40 | | Limit | | | |
| 12:33:04.775 | Eurex | OK | | 1 | FGEL | SEP00 | | 101.45 | | Limit | | | |
| 12:33:04.785 | Eurex | OK | | 1 | FGEL | SEP00 | | 101.45 | | Limit | | | |
| 12:58:27.255 | Eurex | ALERT | | | x exchange is down. | | | | | | | | |
| 12:58:27.325 | Eurex | ALERT | | | for Eurex on IP 192.168.150.1 PID:0x000004E6. | | | | | | | | |
| 12:58:34.255 | Eurex | ALERT | | | x exchange is up | | | | | | | | |
| 13:18:42.682 | Eurex | OK | | 10 | FGEL | JUN00 | | 105.50 | | Limit | 15:05:00 | | |

Audit Trail

The Audit Trail displays the current day's order-related messages from the exchange and official exchange announcements. The last 10 days of Audit Trail information are available to you on your workstation's hard drive in a Microsoft Access file. You can narrow the range of data displayed.

Order Book

Order

Order No

Order Price

Order Qty

Order Product

Order Maturity

Order Status

Order Type

Order Priority

Order Lock

| # | Exch | Status | Order No | BS | OC | Qty | Product | Price |
|---|-------|---------|-------------------|----|----|-----|---------|--------|
| 1 | LIFFE | Working | <EMPTY> | B | O | 10 | B | 102.07 |
| 2 | LIFFE | Working | 14411518807729888 | S | O | 1 | C | 98.000 |
| 3 | LIFFE | Working | 14411518807729989 | B | O | 1 | C | 97.990 |
| 4 | LIFFE | Working | 14411518807730240 | B | O | 1 | C | 97.990 |

Order Book

The Order Book provides information about your current open orders. You can change or delete orders. You may also perform an inquiry to determine the status of an open order, and apply one or more filters to quickly sort and display data.

Fill and Position panes

The Fill window provides detailed information about the current day's trades. The Fills pane (top section) reflects the exchange-confirmed data about a trade. Use filters to narrow the range of orders displayed. The Position pane (middle section) provides your net position summary by exchange/marketplace, product and contract. The Fast Fill pane (bottom section--supported by some exchanges) displays partial trade information until the confirmed trade data is received from the exchange.

Fill 2

Fill

Fill No

Fill Price

Fill Qty

Fill Product

Fill Maturity

Fill Status

Fill Type

Fill Priority

Fill Lock

| # | Exch | Account | BS | OC | Qty | Price | Cur | Product | Strike |
|-----|-------|-----------|----|----|-----|--------|-----|---------|--------|
| 277 | LIFFE | Broker003 | B | O | 1 | 101.98 | EUR | B | Sep99 |
| 278 | LIFFE | Broker003 | B | O | 1 | 101.98 | EUR | B | Sep99 |
| 279 | LIFFE | Broker003 | S | O | 5 | 101.98 | EUR | B | Dec99 |
| 280 | LIFFE | Broker003 | S | O | 5 | 101.98 | EUR | B | Dec99 |

Position

Position No

Position Price

Position Qty

Position Product

Position Maturity

Position Status

Position Type

Position Priority

Position Lock

| # | Exch | Position | BS | OC | Qty | Price | Cur | Product | Strike |
|---|-------|----------|----|----|-----|-------|-----|---------|--------|
| 1 | LIFFE | 4111 | B | O | 185 | 4596 | EUR | B | Sep99 |
| 2 | LIFFE | 4111 | S | O | 88 | 4199 | EUR | B | Sep99 |
| 3 | LIFFE | 95 | B | O | 50 | 1145 | EUR | B | Dec99 |
| 4 | LIFFE | 95 | S | O | 10 | 110 | EUR | B | Dec99 |

09:44:33 03Mar99 S 1 FGBL Jun99 113.91 2827708720

SYCOM APPLE 1

15 10

0 39.55

0 x 39.55

APPL JUL99

GTD

Limit

<None>

Open

M1

Cross With

Cross

ALASTAIR

DOCA

Clear

Lock

Clear

Buy

Sell

| Month | BidQty | BidPrc | AskPr | AskQty | Wkks | LastP | LastQ | Total | TheoPrc | TheoBid | TheoAsk | Expiry |
|-------|--------|--------|-------|--------|------|-------|-------|-------|---------|---------|---------|--------|
| JUL99 | 760 | 39.55 | 40.10 | 3120 | | 40.10 | 60 | 3000 | 39.85 | 39.6 | 39.75 | JUL99 |

Microsoft Excel - Book1

Arial

A1

= BidPrc

| | A | B | C | D | E |
|---|--------|--------|---------|---------|---------|
| 1 | BidPrc | AskPrc | TheoPrc | TheoBid | TheoAsk |
| 2 | 39.55 | 40.1 | 39.85 | 39.6 | 39.75 |

Sheet1 / Sheet2 / Sheet3 / NUM

Excel Two-Way Link for Theoretical & Implied Pricing

Link a Microsoft Excel worksheet to X_TRADER to calculate theoretical bid/ask prices and/or implied prices using your proprietary pricing model(s).

Customer Defaults

Define Customer Default profiles to establish all of the most common order variables by customer name. Multiple profiles allow you to quickly switch between customers or apply different trading profiles for the same customer.

Customer Defaults

| | Customer | SEL | Account | TRF |
|---|----------|-------------------------------------|---------|-----|
| 1 | Default | <input checked="" type="checkbox"/> | | |
| 2 | | <input type="checkbox"/> | | |
| 3 | | | | |

You can generate quotes by using a proprietary theoretical pricing model, X_TRADER Spread Table(s) and Product Group(s), or you can manually enter individual quotes. You can respond to RFQs manually or enable auto quoting to automatically send a response.

[illegible]

GUARDIAN

is a service that runs on all X_TRADER workstations. It is the central point of communication between a local machine (a trader's workstation) and the TT Gateway (an exchange server). Guardian is also an administrative tool that may be used by a System Administrator on a trading or non-trading workstation to monitor the status of X_TRADER and the TT Gateways.

Access X_TRADER system on the local machine and TT Gateway.

TT Exchange Login - Trader (SIMULATION)

Exchange List

Eurex

LIFFE

CME

Eurex

LIFFE

CME

Member Id

Group Id

Trader Id

Password

EUR Member

Default Account

Ref Server

AAAAA

BBB

001

192.1.23.10

Login

Change Password

Close

Guardian - [Simulation]

File

Tools

Mode

Help

Applications and Exchange Servers

Status

| | |
|-------------------------------|--------------|
| WAN Routing | Down |
| Applications on 192.168.3.247 | |
| GUARDIAN | Running. |
| Exchanges | Running. |
| CME | Running. |
| Eurex-A | Running. |
| GARBAN-A | Running. |
| LIFFE | Running. |
| 192.168.3.180 | Running. |
| GUARDBSERVER | Running. |
| FILL SERVER | Running. |
| ORDER SERVER | Running. |
| PRICE SERVER | Running. |
| ORDER ROUTER | Running. |
| ORDRTR03 | Initializing |
| ORDRTR04 | Initializing |
| ORDRTR00 | Running. |
| ORDRTR01 | Initializing |
| ORDRTR02 | Initializing |

Ready

Guardian

!

All logfiles have been collected.
You can email them to Trading Technologies, Inc.
Log: C:\TT\Logs\192.168.3.247_06-01-2001_cit.zip
Email: support@tradingtechnologies.com

OK

Guardian will also zip all relevant local logs and configuration files for easy transfer of data to remote technical support staff.

X TRADER WEB provides a browser based real-time professional Internet

trading tool with the following features and advantages:

Security -- 128-bit encryption-order

encryption for your exchanges.

Scalability -- Easily and quickly increase the

number of users by simply adding machines,

eliminating expensive software changes.

Multiple Exchanges -- You can extend

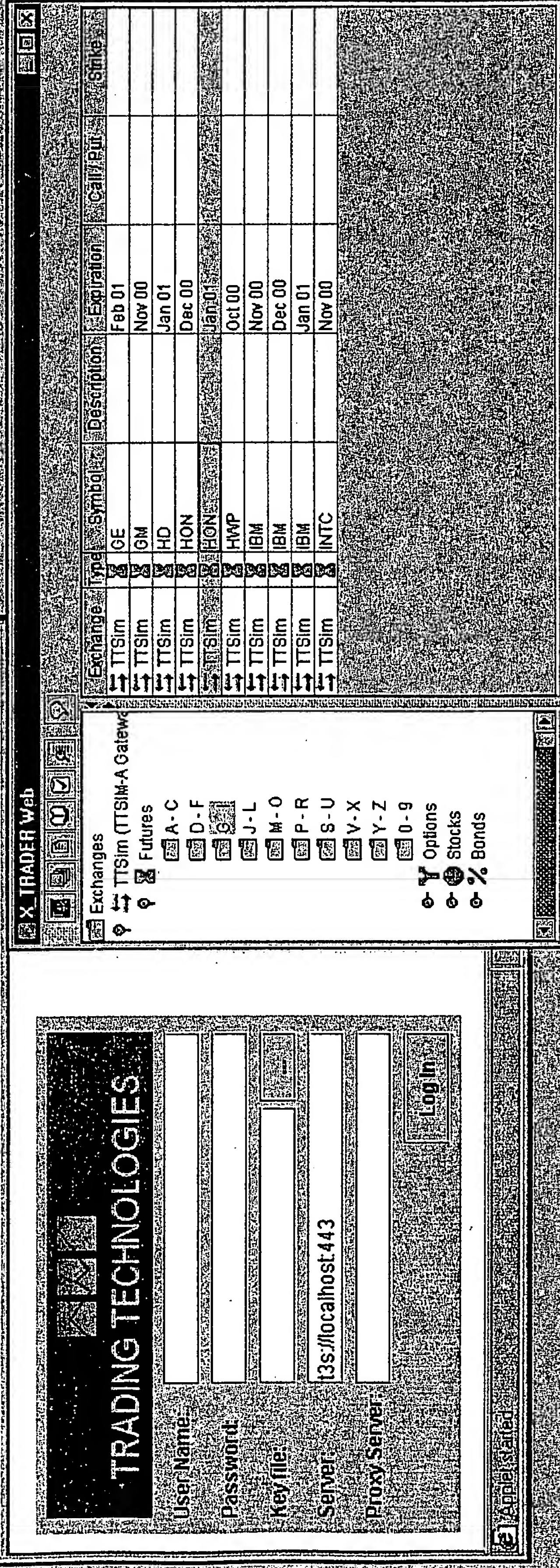
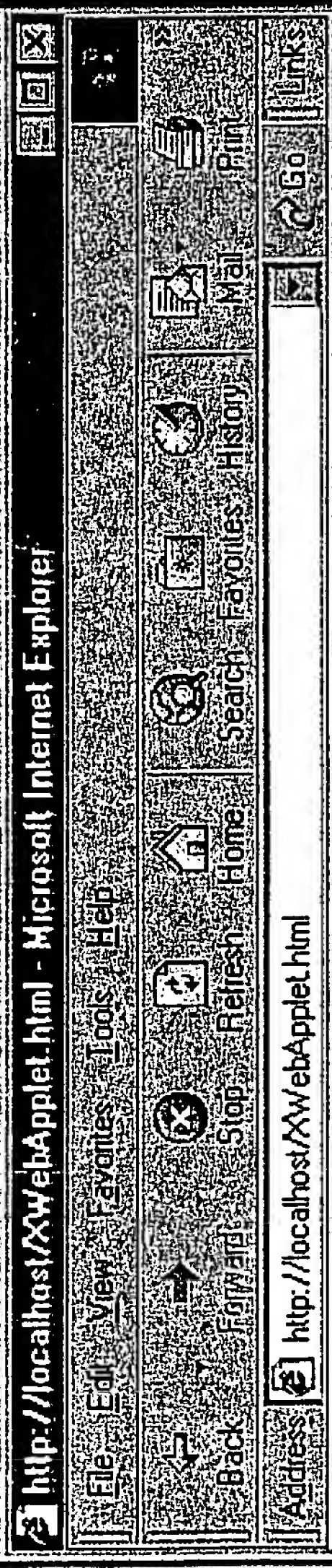
your electronic trading system beyond

your intranet, to your partners on the

Internet. Your trading partners no longer

have to reside on the same LAN to trade

through your brokerage.



Market Window

Exchange: TTSim

Symbol: GE

Description: MCD

Expiration: Feb 01

Call/Put: Call

Strike: 100

Bid Quantity: 100

Bid Price: 57.75

Ask Price: 57.75

TTSim

TTSim

TTSim

TTSim

Working Orders for guest before Aug 21, 2000, 11:59:59 PM

Order Book

Order

User Name

Order ID

Quantity

Price

Min Vol

9... guest

guest

1000001

100

57.75

50

9... guest

guest

9... guest

guest

Order Form

Style 1

1

5

10

100

500

Clear

Buy

Sell

Depth Window - TTSim INTC Nov 00

TTSim INTC Nov 00

| Accum. Bid Quantity | Avg Bid Price | Bid Quantity | Bid Price | Ask Price | Ask Quantity | Avg Ask Price | Accum. Ask Quantity |
|---------------------|---------------|--------------|-----------|-----------|--------------|---------------|---------------------|
| 1915 | 136.5221 | 1515 | 136.52 | 136.55 | 25 | 136.5408 | 325 |
| 1955 | 136.5216 | 40 | 136.50 | | | | |
| 2255 | 136.5148 | 300 | 136.47 | | | | |
| 2469 | 136.3185 | 214 | 134.25 | | | | |

Audit Trail

| Date | Type | Text |
|------------------------------|------|---|
| Mon Aug 21 08:31:55 CDT 2000 | 00 | Logged in from chnjoconnor (172.17.18.2) |
| Mon Aug 21 08:33:11 CDT 2000 | 00 | Unable to place order. Order does not have a valid price. |
| Mon Aug 21 08:33:31 CDT 2000 | 00 | Unable to place order. ORDER has been rejected. |

com.it.ux.UXException: ORDER has been rejected: Invalid Price!
at weblogic.rmi.extensions.AbstractRequest.sendReceive(AbstractRequest.java:76)
at com.it.ux.proxy.OrderBookProxyBeanEOImpl_WLStub.placeOrder(OrderBookProxyBeanEOImpl_WLStub.java:48)
at com.it.ux.proxy.OrderBookProxyBeanEOImpl_ServiceStub.placeOrder(OrderBookProxyBeanEOImpl_ServiceStub.java:48)
at com.it.ux.proxy.OrderBookProxyBeanEOImpl_WLStub.placeOrder(OrderBookProxyBeanEOImpl_WLStub.java:48)
at com.it.ux.UXOrderImpl.place(UXOrderImpl.java:187)
at com.it.ux.web.order.OrderFormXT.handleSellOrderCommand(OrderFormXT.java:60)
at com.it.ux.web.order.OrderFormXT.handleSellOrderCommand(OrderFormXT.java:60)
at javax.swing.AbstractButton.fireActionPerformed(Unknown Source)
at javax.swing.DefaultButtonModel.fireActionPerformed(Unknown Source)
at javax.swing.DefaultButtonModel.setPressed(Unknown Source)

X-TRADER WEB provides:

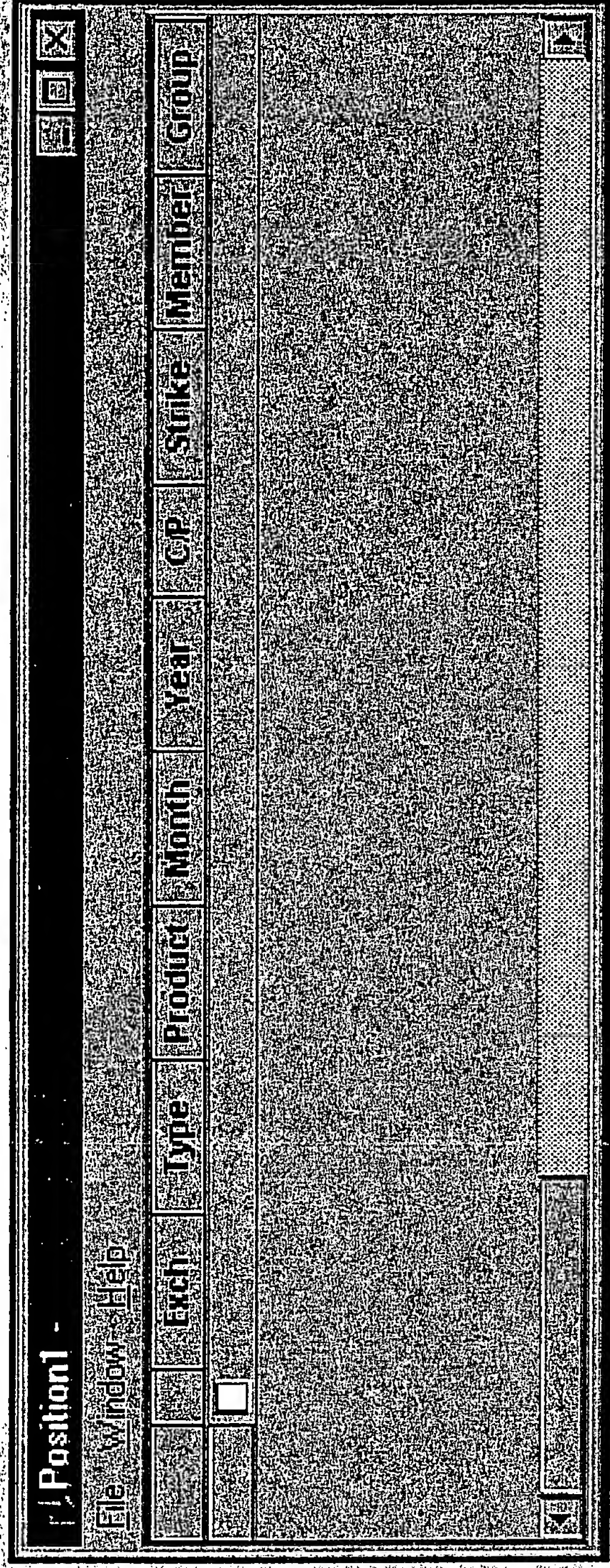
- Real time -- Real time market and price updates, as well as direct order entry into electronic markets.
- Internet Awareness -- Internet connections that let you obtain a comprehensive view of the market even when you are away from the office.
- Platform Independence -- Your traders all have the same user interface, with no platform constraints.
- Simple and Inexpensive Administration and Deployment -- Thin client architecture that can be easily deployed and updated over the web.
- Other Features -- Common order book, support of up to 1,000,000 simultaneous users, and localization (user interface in different languages).

X_RISK aggregates fills into a net position based on filters and the data range you select. This information updates dynamically as fills arrive. You can also enter trades manually, while receiving market updates and announcements. **X_RISK** also lets you set alerts for various types of conditions, such as an alert threshold on P/L, or an alert limit on maximum position size.

You use **X_RISK** to quantify the positions for which you manage risk. You can view positions several ways:

Market (Exchange and Option Type)

Product
Expiration Month
Expiration Year
Member
Trader
Group
Account
Account type



The **Position** window is the main window in **X_RISK**. It lets you view the positions for which you manage risk. **X_RISK** aggregates fills into a net position based on the filters and data range that you select. This information updates dynamically as fills arrive. **X_RISK** stores all downloaded fills into a database and holds them so that you can generate reports. This database is also the source for fills that you can load into **X_RISK**. You use date and time to indicate how far back you want fills and **X_RISK** delivers the fills into the applications.

Properties

Position: Full Detail Database Sounds

P&L Display Default

☒ Qty x Price

☐ Native Currency

☐ Currency: USD

Alerts

☒ Enable Email Alerts

Email Recipients (semicolon delimited)

Visible Position Columns

Set Default Position Formatting

OK Cancel Apply

The **Manual Trades** window is used to view and enter new manual trades and to delete unwanted manual trades from your current position of filled trades. Fills for manual trades are added to the current net position in the position window where they apply. You can manually add or delete all orders executed through an alternate source. You can calculate your true position and P&L (profit/loss) when you use the Manual Trades feature.

Use the tabs in this **Properties** dialog box to set up e-mail notification for alerts, change database connections, arrange to archive and purge fill records, hide and show columns for the various **X_RISK** windows, select P/L display defaults, and select sounds for alerts.

Manual Trades

File Window Help

Exchange: Eurus Product: FUTURE Year: 00 Day: 00

Member: Group: Trade: Account: Price: P&L

Quantity: 1 Price: 0

Add Trade Delete Trade

BS OC Qty Price Cur Product CP Month Year Strike Type Variant Account

Reports are subject to the filters that you set in X_RISK. You use the Reports dialog box to set the filters and generate the reports, either to files to a printer.

| Historical Fill | | | | | | | | | | | |
|------------------|----------|------|-----|-------|-----|---------|----|-------|------|--------|--|
| File Window Help | | | | | | | | | | | |
| WS TIME | Exec | BS | QTY | Price | Cur | Product | CP | Month | Year | Strike | |
| 736 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 737 | 07:33:57 | Exec | S | 0 | | | | | 2000 | | |
| 738 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 739 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 740 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 741 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 742 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 743 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 744 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |

The Historical Fill window allows the query of historical fill and position information from the database.

| Historical Fill | | | | | | | | | | | |
|------------------|----------|------|-----|-------|-----|---------|----|-------|------|--------|------|
| File Window Help | | | | | | | | | | | |
| WS TIME | Exec | BS | QTY | Price | Cur | Product | CP | Month | Year | Strike | Type |
| 736 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 737 | 07:33:57 | Exec | S | 0 | | | | | 2000 | | |
| 738 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 739 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 740 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 741 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 742 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 743 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |
| 744 | 07:33:57 | Exec | B | 0 | | | | | 2000 | | |

These are the reports that you can produce with X_RISK

The Confirmed Fills Report

The Unconfirmed Fills Report

The All Fills Report

The Product Price Report

The Order Price Report

Reports

Date Range

Start Date

8/10/00

End Date

8/10/00

Filters

Member

Group

Trader

Account#

Reports

☐ Confirmed Fills

☐ Unconfirmed Fills

☐ All Fills

☐ Product Price

☐ Order Price

Output

☐ Printer

☐ File (.csv)

Generate Reports

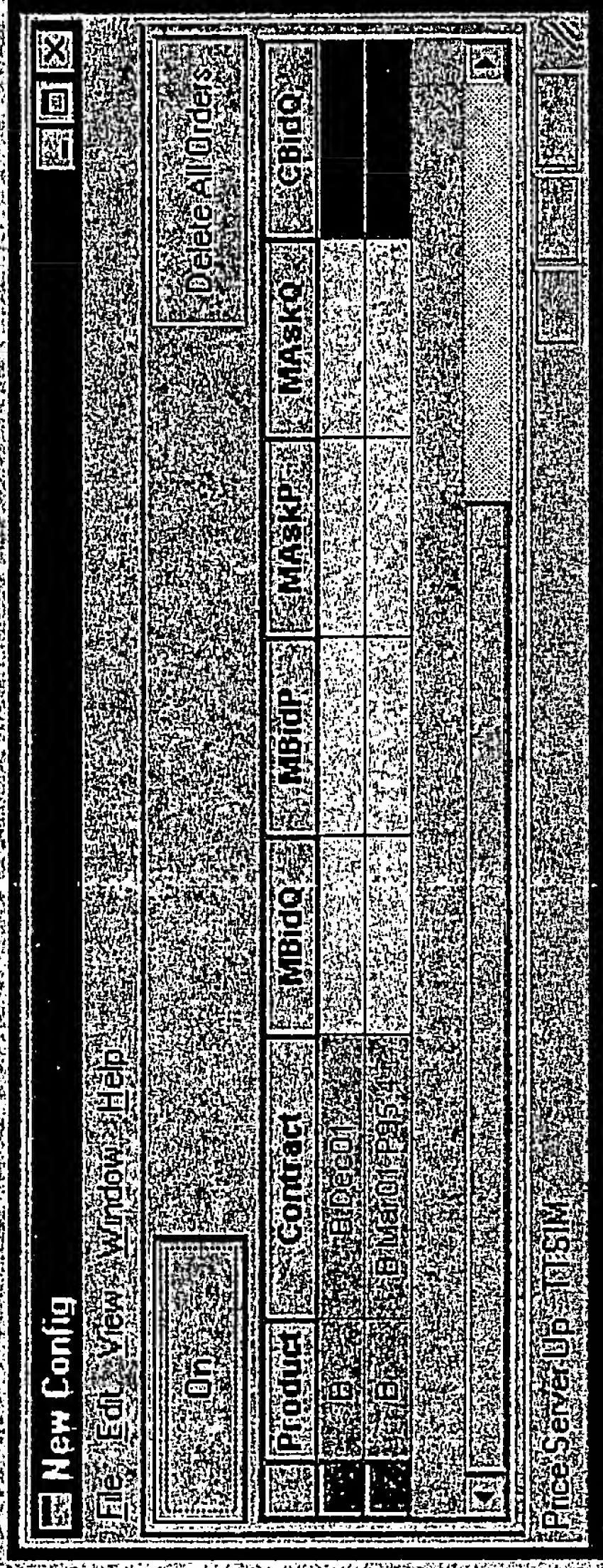
Exit

X_MARKETMAKER™ is an add-on tool to be used in conjunction with the **X_TRADER Trading System™**. Designed to give you and your customers the best technological edge in the business, **X_MARKETMAKER** provides you with a market making screen that allows you to enter two-sided markets with a single send command, as well as other market making features. Working with **X_TRADER**, this tool will enhance your presence in all the world's open-access markets.

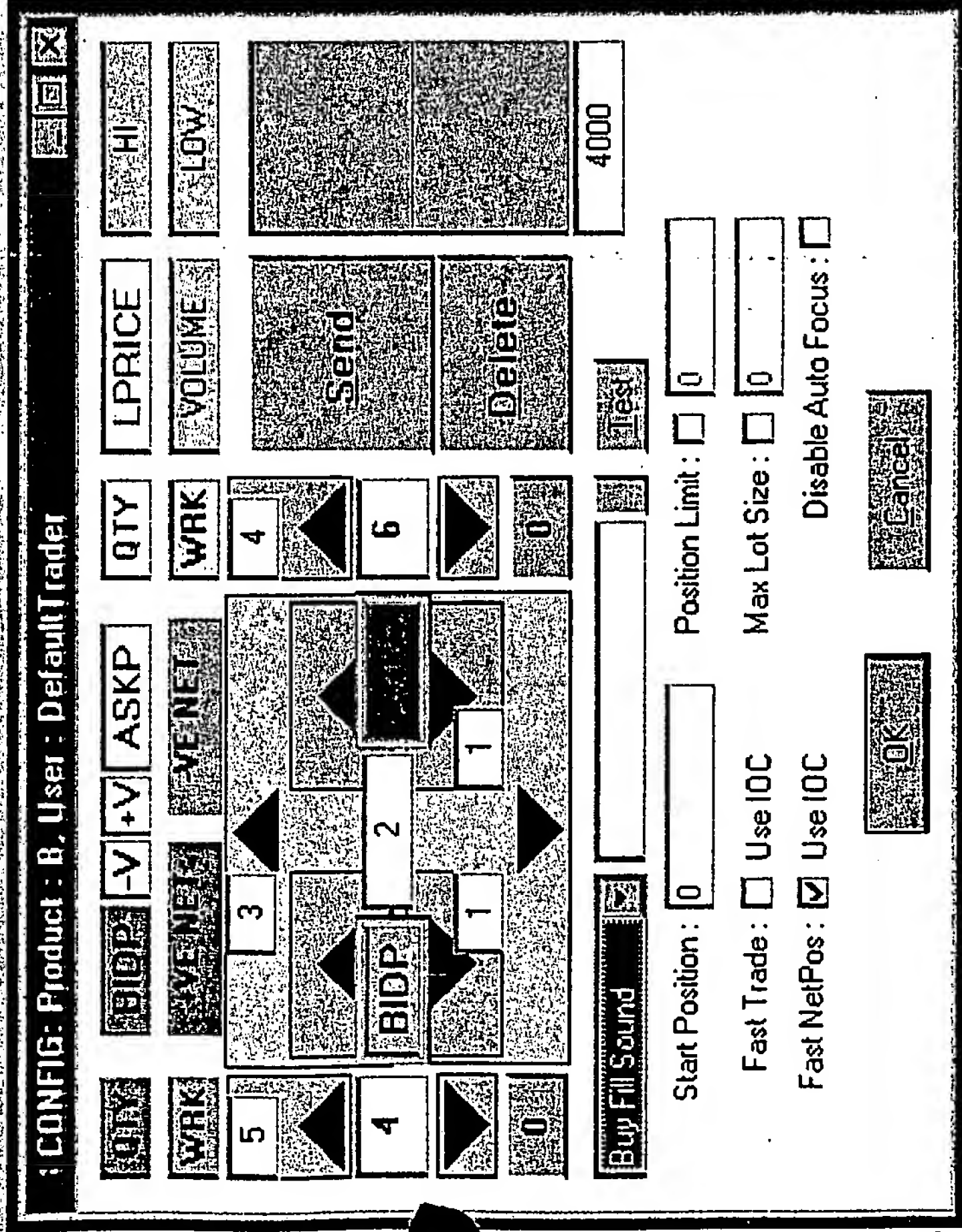
Trading for each product in **X_MARKETMAKER** is done using the **Trading window**. One **X_MARKETMAKER** Trading window is created for each product that appears on the Working Order Grid, allowing you to track multiple products during any one trading session.

| Mkt Bid Qty | Mkt Bid Price | Mkt Ask Price | Mkt Ask Qty | Mkt Last Price | Mkt High |
|--------------|----------------|----------------|---------------|----------------|-------------|
| MM Work Buys | +Ve NetPos | -Ve NetPos | MM Work Sells | Mkt Volume | Mkt Low |
| Req. Bid Qty | Req. Bid Price | Req. Ask Price | Req. Ask Qty | | Trend Graph |
| Zero Bid Qty | | | Zero Ask Qty | | |

The **Working Order Grid** has a variety of column headings to identify the characteristics of the traded products. Use the mouse and the sliding bar at the bottom of the Working Order Grid to expose the column headings or resize the screen for an expanded view.



The net position in the **X-MARKETMAKER** Trading window is indicated by the presence of a number that appears above the trading grid. Display of a number in either field is contingent on market position at the time. The two fields are identified as **+Ve Net Pos** and **-Ve Net Pos** respectively and, depending on the market position, only one or the other is visible at any one time.



The TT Exchange Market

How the Market Works

The TTX supports the ability to be several markets. That is, the TTX is able to present several markets, each with a unique exchange (market) name. This is useful for the presentation of simulation markets, or dividing products into separate markets for reasons of organization and/or security.

The architecture is an Oracle database serving as the market, and a TT GW front end to present an interface into the market. Matching occurs in the database via a trigger, which is easily modifiable on a per-product and/or per-member basis, even by the end customer administrator.

TTX Administration

File Objects

TTX

Exchanges

HM

Items

Members

Orders

Schedule

Manual Gr

Currencies

| Exch | Active | Manual Gr | Base Curre | Tick | Unit Spread | Round Lot | Price Reaso | Qty Reason |
|------|-------------------------------------|-----------|--------------|------|-------------|-----------|-------------|------------|
| | <input checked="" type="checkbox"/> | <None> | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | <None> | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | LME | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | LME | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | LME | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 |
| | <input checked="" type="checkbox"/> | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 |

TTX Administration

File Objects

TTX

Exchanges

HM

Items

Members

Orders

Schedule

Manual Gr

Currencies

| ID | Symbol | Name | ItemKey | MatchType | Update Price | Cover Req | Allow Stop | Allow IOC |
|----|----------|-------------|---------|-----------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 32 | Cu 0615 | Copper (Ex) | CU0345 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 33 | Cu 0915 | Copper (Ex) | CU0345 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 34 | Cu 1215 | Copper (Ex) | CU0345 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 35 | Sn 0815 | Tin (Expre) | SN5438 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 36 | Sn 0915 | Tin (Expre) | SN6543 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 37 | Sn 1215 | Tin (Expre) | SN7654 | Manual | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 42 | FRA 3/6 | Forward R | FRA1234 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 43 | FRA 6/9 | Forward R | FRA2345 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |
| 44 | FRA 9/12 | Forward R | FRA432 | FIFO | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> | <input checked="" type="checkbox"/> |

TTX Administration

File Objects

TTX

Exchanges

HM

Items

Members

Orders

Schedule

Manual Gr

Currencies

| Exch | Manual Gr | Base Curre | Tick | Unit Spread | Round Lot | Price Reaso | Qty Reason | TT Prod | TT Prod Gr |
|------|-----------|--------------|------|-------------|-----------|-------------|------------|---------|--------------|
| | <None> | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 | Stock | N/A |
| | <None> | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 | Stock | N/A |
| | <None> | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 | Stock | N/A |
| | LME | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 | Stock | N/A |
| | LME | US - U.S. D. | 0.01 | 0 | 1 | <None> | 0 | Stock | N/A |
| | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 | Future | Index Future |
| | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 | Future | Index Future |
| | <None> | US - U.S. D. | 0.1 | 0 | 1 | <None> | 0 | Future | Index Future |

Position

Refresh

Client Applications

TT EXCHANGE can be accessed via any TTAPI client application. This includes, but is not limited to, X_TRADER, X_TRADER WEB, X_RISK, X_QUOTE, X_MARKET MAKER and X_FILE.

TT EXCHANGE includes GUI interfaces for administrative functions. In addition to access via X_TRADER WEB, TT EXCHANGE has its own web-enabled client application. This client for TTX is an HTML client using the HTTP protocol. The web interface facilitates basic trade operations: an order book, trade book (fill window), and audit trail, as well as the ability to receive price updates.

The back-end (business & scaling logic) of this application exists within TT EXCHANGE (the db and/or GW) as opposed to the XTW application server.

TTX Administration

TTX

☒ Exchanges
☒ HM
☐ Items
☐ Members
☐ Orders
☐ Schedule
☐ Manual Gr
☐ Currencies

| ID | Name | Active | Currency | Credit Limit | Credit Remaining |
|----|---------------|-------------------------------------|------------------|--------------|------------------|
| 1 | OREG | <input checked="" type="checkbox"/> | US - U.S. Dollar | 310000000.00 | 309366515.54 |
| 2 | NYSE MEMBER 2 | <input checked="" type="checkbox"/> | US - U.S. Dollar | 640000000.00 | 640000000.00 |
| 3 | MEMBER-3 | <input checked="" type="checkbox"/> | EU - Euro | 320000000.00 | 320000000.00 |
| 4 | NYSE MEMBER 4 | <input checked="" type="checkbox"/> | US - U.S. Dollar | 20000.00 | 20000.00 |
| 5 | TAD | <input checked="" type="checkbox"/> | US - U.S. Dollar | 640000000.00 | 639878956.16 |
| 26 | JIM | <input checked="" type="checkbox"/> | US - U.S. Dollar | 0.00 | 0.00 |
| 41 | HM MEMBER | <input checked="" type="checkbox"/> | US - U.S. Dollar | 0.00 | 0.00 |
| 12 | ECOC | <input checked="" type="checkbox"/> | US - U.S. Dollar | 0.00 | 0.00 |
| 13 | ECOCII | <input checked="" type="checkbox"/> | US - U.S. Dollar | 0.00 | 0.00 |

TTX Administration

TTX

☒ Exchanges
☒ HM
☐ Items
☐ Members
☐ Orders
☐ Schedule
☐ Manual Gr
☐ Currencies

| Item | Item | Item | Item |
|-----------------------------|------|------|------|
| Copper (Expires 2000/06/15) | | | |
| Copper (Expires 2000/09/15) | | | |
| Copper (Expires 2000/12/15) | | | |
| Tin (Expires 2000/06/15) | | | |
| Tin (Expires 2000/09/15) | | | |
| Tin (Expires 2000/12/15) | | | |
| Forward Rate Agreement | | | |
| Forward Rate Agreement | | | |
| Forward Rate Agreement | | | |

APPENDIX E

MD_TRADER™ is the software that is revolutionizing the electronic trading industry. It is the only electronic interface that enables trading directly from market activity.

- Enables users to anticipate and respond instantly to movements in the marketplace
- Guarantees trade execution at prices selected by the user
- Unique vertical display of market depth provides constant view of market activity
- Trading screen can reset automatically, so that market gaps are always visible
- One window views - working orders, fills and market depth



TRADING TECHNOLOGIES

view multiple products
from multiple exchanges

| Eurex FDAX DEC00 | | | |
|------------------|---|------------------------------|-------|
| 12:44:48 | | 71070 | |
| S | 0 | <Default> | 71065 |
| W | 1 | 32459 | 71060 |
| S | 0 | 5 | 71055 |
| W | 1 | 1 | 71050 |
| | | 1 | 5 |
| | | 10 | 20 |
| | | 50 | 100 |
| | | CLR | 71030 |
| | | 1 | 71025 |
| | | <input type="checkbox"/> loc | 71020 |
| | | Del All | 71015 |
| | | Del Bids | 71010 |
| | | Del Offers | 71005 |
| | | Trade Out | 71000 |
| | | 6 | 70995 |
| | | + | 70990 |
| | | - | 70985 |
| | | Patent Pending | |

static price display
guarantees the price you
click is what you send

single-click trading

default quantity

single-click delete

sweep the book capability

single-click
delete

extended market
depth emphasizes
liquidity and
movement

| Order Book | | | | | | | | | | | | | |
|----------------|------|---------|--------|---------|--------|---|-------|--------|-------|--------------|---------|----------|-----------|
| Change | | 100 | | 88.14 | | Sell 100 x 88.14 ELT Limit 871088278000001 Acct:13579 | | Clear | | King Trading | | Hold | |
| Cancel/Replace | | 100 | | 88.14 | | GTD | | GTD | | GTD | | GTD | |
| # | Exch | TS | Status | Product | BAS | Qty | MMYY | Price | Type | Trf | Exe Qty | Work Qty | Account # |
| 22 | OME | Working | ES | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 23 | OME | Working | ES | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 24 | OME | Working | ES | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 25 | OME | Working | ES | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 26 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 27 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 28 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 29 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 30 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 31 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |
| 32 | TSIM | Working | FDAX | SEP00 | 162025 | 1 | SEP00 | 162025 | Limit | OTD | 0 | 1 | 13579 |

filters

partial fills

MD-TRADER

Hardware Requirements

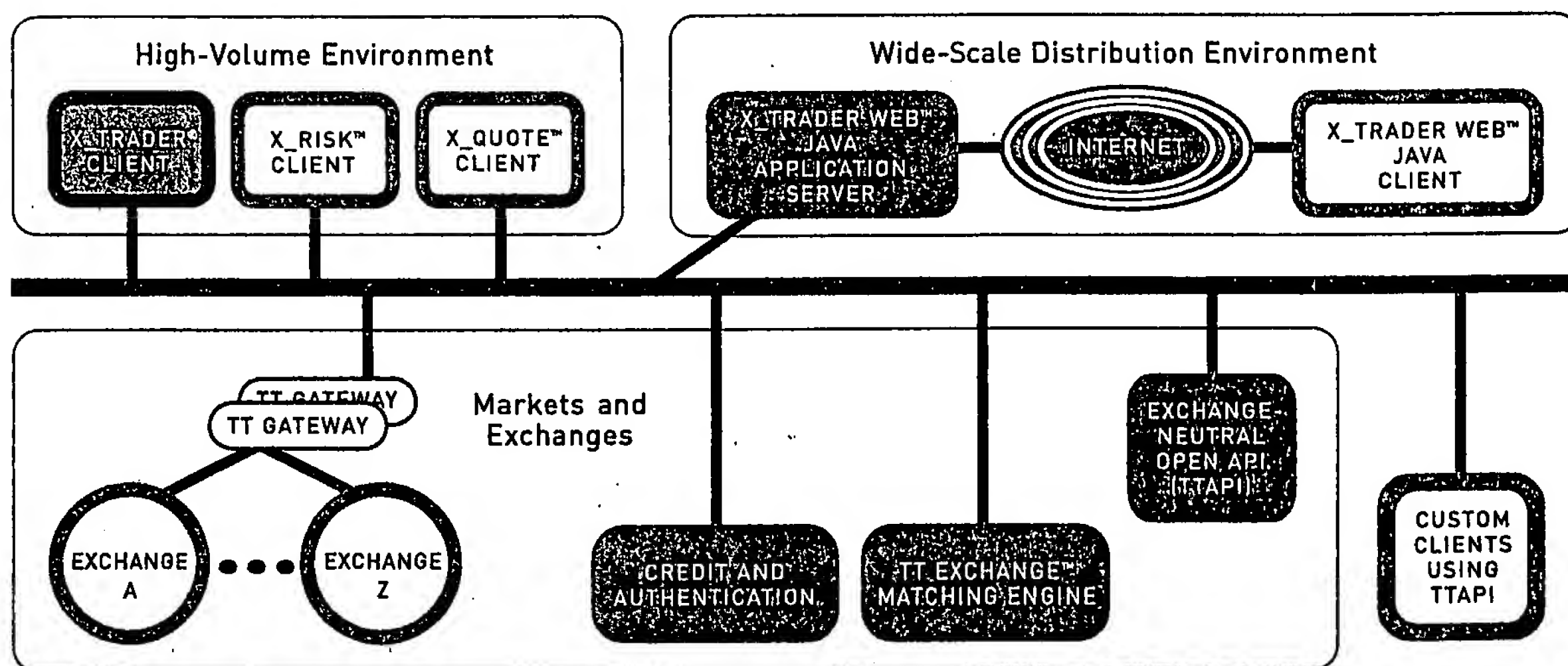
- 850 MHz or higher recommended, Intel 550 Hz minimum
- Windows NT workstation 4.0 or Windows 2000. For NT 4.0 use Service Packs 5, 6a (SP 6 is not recommended)
- 128 MB RAM minimum
- 1GB of available hard disk space for software and log files (EIDE sufficient, Ultra-wide SCSI or ultra-wide SCSI II recommended)
- Hard disks formatted using NTFS (file system)
- 10/100 Mb auto-switching network interface card
- CD-ROM and 1.44 MB floppy drives
- 21" color-8 plane color monitor, tested to 1600x1200
- For single monitor use, a 32 Mb AGP graphics card is recommended. A 16Mb PCI graphics card with 16 bit video depth is minimum. For multiple monitor use, an AGP graphics card with 32 Mb per monitor head is recommended.
- 3-button mouse to support middle button click trading with Microsoft Intellimouse (Intellipoint) software removed. A two-button mouse is supported, but Click and Dime trading are mutually exclusive.
- Tibco (included with TT software)



TRADING TECHNOLOGIES

MD-TRADER™

TT Product Suite



For additional information, please contact one of the following sales offices:

One World Trade Center
86th Floor
New York, NY 10048
USA

Phone +1.212.313.5300

100 South Wacker Drive
Suite 1824
Chicago, IL 60606
USA

Phone +1.312.372.3397

1603 Orrington Avenue
Suite 1300
Evanston, IL 60201
USA

Phone +1.847.424.8844

UK Ltd.
36 Poultry
London EC2R 8AJ

Phone +44.20.7600.2121

Bockenheimer Landstrasse 39
60325 Frankfurt
Germany

Phone +49.69.138.726.0

SALES@TRADINGTECHNOLOGIES.COM